

CLAIMS

1. A device, comprising:

a sensor, which is adapted to generate a signal responsive to a state of a patient;

5 at least one electrode, which is adapted to be coupled to a pelvic site of the patient; and

a control unit, which is adapted to receive the signal, to analyze the signal so as to distinguish between an imminent stress incontinence event and an imminent urge event, and, responsive to analyzing the signal, to apply an electrical waveform to the at least one electrode.

2. A device according to claim 1, wherein the at least one electrode comprises a single electrode adapted to be coupled to the pelvic site, wherein the control unit is adapted to apply a first waveform to the single electrode responsive to determining that a stress incontinence event is imminent, and wherein the control unit is adapted to apply to the single electrode a second waveform, different from the first waveform, responsive to determining that an urge event is imminent.

3. A device according to claim 1, wherein the control unit is adapted to analyze the signal so as to distinguish between the imminent stress incontinence event and an imminent urge incontinence event.

4. A device according to claim 1, wherein the control unit is adapted to analyze the signal so as to distinguish between the imminent stress incontinence event and an urge-frequency event.

5. A device according to claim 1, wherein the control unit is adapted to receive an input from the patient and to apply the waveform responsive to the input.

6. A device according to claim 1, wherein the at least one electrode is adapted to be implanted so as to stimulate a nerve in the pelvic region of the patient.

7. A device according to claim 1, wherein the at least one electrode is adapted to be implanted in contact with a pelvic muscle of the patient.

8. A device according to claim 1, wherein the at least one electrode comprises:

a first electrode, adapted to be coupled to a first pelvic site; and

a second electrode, adapted to be coupled to a second pelvic site,

wherein the control unit is adapted to apply a first waveform to the first electrode responsive to analyzing the signal and determining that a stress incontinence event is imminent, and wherein the control unit is adapted to apply to the second electrode a second waveform, different from the first waveform, responsive to determining that an urge event is imminent.

9. A device according to claim 8, wherein the first electrode is adapted to be coupled to a pelvic muscle of the patient, and wherein the second electrode is adapted to be coupled to a sacral nerve of the patient.

10. A device according to claim 1, wherein the control unit is adapted to configure the waveform so as to stimulate a pelvic muscle to contract so as to inhibit involuntary urine flow through the patient's urethra.

11. A device according to claim 10, wherein the control unit is adapted to configure the waveform so as to stimulate the pelvic muscle to contract responsive to analyzing the signal and determining that a stress incontinence event is imminent.

12. A device according to claim 11, wherein the control unit is adapted to configure the waveform to have a frequency component between about 40 and 50 Hz, responsive to determining that a stress incontinence event is imminent.

13. A device according to claim 11, wherein the control unit is adapted to configure the waveform to have an amplitude between about 3 and 9 V, responsive to determining that a stress incontinence event is imminent.

14. A device according to claim 11, wherein the control unit is adapted to configure the waveform to include a series of pulses having widths between about 0.05 and 1 ms, responsive to determining that a stress incontinence event is imminent.

15. A device according to claim 11, wherein the control unit is adapted to configure the waveform to have a duration between about 0.2 and 1 second, responsive to determining that a stress incontinence event is imminent.

16. A device according to claim 1, wherein the control unit is adapted to configure the waveform so as to induce relaxation of a bladder muscle of the patient.

17. A device according to claim 16, wherein the control unit is adapted to configure the waveform so as to induce the relaxation of the bladder muscle responsive to analyzing the signal and determining that an urge event is imminent.

18. A device according to claim 17, wherein the control unit is adapted to configure the waveform to have a frequency component between about 5 and 15 Hz, responsive to determining that an urge event is imminent.

19. A device according to claim 17, wherein the control unit is adapted to configure the waveform to have a

duration less than about 10 minutes, responsive to determining that an urge event is imminent.

20. A device according to claim 17, wherein the control unit is adapted to configure the waveform to have an amplitude between about 0.5 and 5 V, responsive to determining that an urge event is imminent.

21. A device according to claim 17, wherein the control unit is adapted to configure the waveform to include a series of pulses having widths between about 0.05 and 1 ms, responsive to determining that an urge event is imminent.

22. A device according to claim 17, wherein the control unit is adapted to configure the waveform to include a rise time lasting between about 1 second and 1 minute prior to attaining a designated waveform application voltage, responsive to determining that an urge event is imminent.

23. A device according to claim 17, wherein the control unit is adapted to configure the waveform to include a decay time lasting between about 1 second and 1 minute prior to returning to a baseline voltage, responsive to determining that an urge event is imminent.

24. A device according to claim 17, wherein the control unit is adapted to configure the waveform to have a duty cycle between about 5% and 15%, responsive to determining that an urge event is imminent.

25. A device according to claim 1, wherein the sensor comprises a sensing electrode adapted to sense electrical activity of a bladder muscle of the patient.

26. A device according to claim 25, wherein the at least one electrode comprises the sensing electrode and wherein the control unit is adapted to apply the waveform to the sensing electrode responsive to analyzing the signal.

27. A device according to claim 1, wherein the sensor comprises a pressure sensor, and wherein the control unit is adapted to analyze a rate of change of the received signal, to identify the imminent stress incontinence event responsive to a relatively high rate of change of the received signal, and to identify the imminent urge event responsive to a relatively low rate of change of the received signal.

28. A device according to claim 27, wherein the sensor is adapted to be implanted at an abdominal site of the patient, and wherein the sensor is adapted to generate the signal with a relatively low rate of change responsive to voluntary contraction by the patient of abdominal musculature of the patient.

29. A device according to claim 1, wherein the control unit is adapted to evaluate the imminence of the urge event responsive to an amount of time elapsed since the patient last voided.

30. A device according to claim 1, wherein the sensor is adapted to be coupled to the patient's bladder.

31. A device according to claim 30, wherein the sensor comprises a pressure sensor.

32. A device according to claim 30, wherein the sensor comprises an acceleration sensor.

33. A device according to claim 30, wherein the sensor comprises an ultrasound transducer.

34. A device, comprising:

a first sensor, which is adapted to be coupled to a bladder site of a patient and to generate a first signal, responsive to a pressure in the bladder;

a second sensor, which is adapted to be coupled to an abdominal site of the patient and to generate a second signal, responsive to an overall pressure in the abdomen;

at least one electrode, which is adapted to be coupled
5 to a pelvic site of the patient; and

a control unit, which is adapted to receive the first and second signals, analyze the signals so as to distinguish between two conditions of the patient, and apply an electrical waveform to the at least one electrode,
10 responsive to analyzing the signals:

35. A device according to claim 34, wherein the first sensor comprises a first pressure sensor, and wherein the second sensor comprises a second pressure sensor.

36. A device according to claim 34, wherein the control
15 unit is adapted to: (a) analyze the first and second signals so as to detect a characteristic in the first signal and a characteristic in the second signal, (b) identify whether the characteristic in the first signal is a significant change thereof and whether the characteristic
20 in the second signal is a significant change thereof that generally corresponds in time to the change in the first signal, and (c) configure the waveform responsive to step (b).

37. A device according to claim 34, wherein the control
25 unit is adapted to: (a) analyze the first and second signals so as to detect a characteristic in the first signal and a characteristic in the second signal, (b) identify whether the characteristic in the first signal is a significant change thereof and whether the characteristic
30 in the second signal is a significant change thereof that generally corresponds in time to the change in the first signal, (c) apply a first waveform to the at least one electrode if the analysis identifies the change in the

first signal as generally corresponding in time to the change in the second signal, and (d) apply to the at least one electrode a second waveform, different from the first waveform, if the analysis identifies the change in the
 5 first signal as not generally corresponding in time to the change in the second signal.

38. A device according to claim 37, wherein the control unit is adapted to configure the first waveform for treatment of stress incontinence of the patient, and
 10 wherein the control unit is adapted to configure the second waveform for treatment of an urge disorder of the patient.

39. A device, comprising:

a sensor, which is adapted to generate a signal responsive to a state of a patient;

15 at least one electrode, which is adapted to be coupled to a pelvic site of the patient; and

a control unit, which is adapted to receive the signal, to analyze the signal so as to determine a likelihood of imminent fecal incontinence, and, responsive
 20 to analyzing the signal, to apply an electrical waveform to the at least one electrode.

40. A device according to claim 39, wherein the control unit is adapted to configure the waveform so as to stimulate an anal sphincter muscle to contract.

25 41. A device according to claim 39, wherein the at least one electrode is adapted to be implanted so as to stimulate a nerve in the pelvic region of the patient.

42. A device according to claim 39, wherein the at least one electrode is adapted to be implanted in contact with a
 30 pelvic muscle of the patient.

43. A device according to claim 39, wherein the control unit is adapted to configure the waveform to have a frequency component between about 40 and 50 Hz.

5 44. A device according to claim 39, wherein the control unit is adapted to configure the waveform to have an amplitude between about 3 and 9 V.

45. A device according to claim 39, wherein the control unit is adapted to configure the waveform to include a series of pulses having widths between about 0.05 and 1 ms.

10 46. A device according to claim 39, wherein the control unit is adapted to configure the waveform to have a duration between about 1 and 20 seconds.

47. A device according to claim 39, wherein the at least one electrode comprises a single monopolar electrode.

15 48. A device according to claim 39, wherein the at least one electrode comprises a pair of bipolar electrodes.

49. A device according to claim 39, wherein the at least one electrode comprises a flexible intra-muscular electrode.

20 50. A device according to claim 39, wherein the at least one electrode and the control unit are adapted to be implanted in the body of the patient.

25 51. A device according to claim 39, wherein the control unit is adapted to receive an input from the patient and to apply the waveform responsive to the input.

30 52. A device according to claim 39, wherein the control unit is adapted to analyze the signal so as to distinguish between: (a) a first signal, indicative of imminent fecal incontinence, and (b) a second signal, indicative of voluntary voiding by the patient.

53. A device according to claim 52, wherein the control unit is adapted to distinguish between the first and second signals responsive to a rate of change of the signal generated by the sensor.

5 54. A device according to claim 52, wherein the control unit is adapted to gather information regarding the signal over an extended period and to analyze the information to find a pattern characteristic of the patient, for use in determining when imminent fecal incontinence is likely.

10 55. A device according to claim 54, wherein the control unit is adapted to associate with the pattern a time-varying threshold to which a level of the signal is compared.

15 56. A device according to claim 39, wherein the sensor is adapted to be implanted at a pelvic location of the patient.

57. A device according to claim 56, wherein the sensor comprises a pressure sensor.

20 58. A device according to claim 56, wherein the sensor comprises an acceleration sensor.

59. A device according to claim 56, wherein the sensor comprises an ultrasound transducer.

60. A device according to claim 56, wherein the sensor comprises a sensing electrode.

25 61. A device according to claim 56, wherein the sensor comprises the at least one electrode.

62. A device, comprising:

at least one electrode, which is adapted to be coupled to a pelvic muscle of a patient; and

30 a control unit, which is adapted to drive the at least one electrode to apply to the muscle an electrical waveform

configured to reduce patient pain due to interstitial cystitis.

63. A device according to claim 62, wherein the control unit is adapted to receive an input from the patient and to
5 apply the waveform responsive to the input.

64. A device according to claim 62, wherein the control unit is adapted to drive the at least one electrode responsive to an amount of time elapsed since the patient last voided.

10 65. A device according to claim 62, wherein the at least one electrode comprises a single monopolar electrode.

66. A device according to claim 62, wherein the at least one electrode comprises a pair of bipolar electrodes.

15 67. A device according to claim 62, wherein the at least one electrode comprises a flexible intra-muscular electrode.

68. A device according to claim 62, wherein the at least one electrode and the control unit are adapted to be implanted in the body of the patient.

20 69. A device according to claim 62, wherein the control unit is adapted to configure the waveform so as to induce relaxation of a bladder muscle of the patient.

70. A device according to claim 69, wherein the control unit is adapted to configure the waveform to have a
25 frequency component between about 5 and 15 Hz.

71. A device according to claim 69, wherein the control unit is adapted to configure the waveform to have an amplitude between about 1 and 4 V.

30 72. A device according to claim 69, wherein the control unit is adapted to configure the waveform to include a

series of pulses having widths between about 0.05 and 0.2 ms.

73. A device according to claim 69, wherein the control unit is adapted to configure the waveform to have a duration of about 10 - 30 minutes.

74. A device according to claim 69, wherein the control unit is adapted to configure the waveform to include a rise time lasting between about 1 second and 3 minutes prior to attaining a designated waveform application voltage.

75. A device according to claim 69, wherein the control unit is adapted to configure the waveform to include a decay time lasting between about 1 second and 3 minutes, prior to returning to a baseline voltage.

76. A device according to claim 69, wherein the control unit is adapted to configure the waveform to have a duty cycle between about 5% and 15%.

77. A device, comprising:

a sensor, which is adapted to generate a signal responsive to a state of a patient;

at least one electrode, which is adapted to be coupled to an anatomical site of the patient; and

a control unit, which is adapted to receive the signal, to analyze the signal so as to determine a likelihood of imminent patient pain due to interstitial cystitis, and, responsive to analyzing the signal, to apply to the at least one electrode an electrical waveform configured to reduce patient pain due to interstitial cystitis.

78. A device according to claim 77, wherein the control unit is adapted to receive an input from the patient and to apply the waveform responsive to the input.

79. A device according to claim 77, wherein the control unit is adapted to configure the waveform so as to induce relaxation of a bladder muscle of the patient.

5 80. A device according to claim 77, wherein the control unit is adapted to configure the waveform to have a frequency component between about 5 and 15 Hz.

81. A device according to claim 77, wherein the control unit is adapted to configure the waveform to have an amplitude between about 1 and 4 V.

10 82. A device according to claim 77, wherein the control unit is adapted to configure the waveform to include a series of pulses having widths between about 0.05 and 0.2 ms.

15 83. A device according to claim 77, wherein the control unit is adapted to configure the waveform to have a duration of about 10 - 30 minutes.

20 84. A device according to claim 77, wherein the control unit is adapted to configure the waveform to include a rise time lasting between about 1 second and 3 minutes prior to attaining a designated waveform application voltage.

85. A device according to claim 77, wherein the control unit is adapted to configure the waveform to include a decay time lasting between about 1 second and 3 minutes prior to returning to a baseline voltage.

25 86. A device according to claim 77, wherein the control unit is adapted to configure the waveform to have a duty cycle between about 5% and 15%.

30 87. A device according to claim 77, wherein the sensor comprises a sensing electrode adapted to sense electrical activity of a bladder muscle of the patient.

88. A device according to claim 77, wherein the control unit is adapted to evaluate the imminence of the interstitial cystitis responsive to an amount of time elapsed since the patient last voided.

5 89. A device according to claim 77, wherein the at least one electrode comprises a single monopolar electrode.

90. A device according to claim 77, wherein the at least one electrode comprises a pair of bipolar electrodes.

10 91. A device according to claim 77, wherein the at least one electrode comprises a flexible intra-muscular electrode.

15 92. A device according to claim 77, wherein the control unit is adapted to receive an indication of a fill level of the patient's bladder and to inhibit application of the electrical waveform when the fill level of the bladder is low.

20 93. A device according to claim 77, wherein the control unit is adapted to analyze the signal so as to distinguish between: (a) a first signal, indicative of imminent interstitial cystitis, and (b) a second signal, indicative of voluntary voiding by the patient.

25 94. A device according to claim 93, wherein the control unit is adapted to distinguish between the first and second signals responsive to a rate of change of the signal generated by the sensor.

30 95. A device according to claim 93, wherein the control unit is adapted to gather information regarding the signal over an extended period and to analyze the information to find a pattern characteristic of the patient, for use in determining when imminent interstitial cystitis is likely.

96. A device according to claim 95, wherein the control unit is adapted to associate with the pattern a time-

varying threshold to which a level of the signal is compared.

5 97. A device according to claim 77, wherein the sensor comprises a pressure sensor, and wherein the control unit is adapted to analyze a rate of change of the received signal, and to identify the imminent interstitial cystitis responsive to a low rate of change of the received signal.

10 98. A device according to claim 97, wherein the sensor is adapted to be implanted at an abdominal site of the patient, and wherein the sensor is adapted to generate the signal with a low rate of change responsive to voluntary contraction by the patient of abdominal musculature of the patient.

15 99. A device according to claim 77, wherein the sensor is adapted to be coupled to the patient's bladder.

100. A device according to claim 99, wherein the sensor comprises a pressure sensor. ✓

101. A device according to claim 99, wherein the sensor comprises an acceleration sensor.

20 102. A device according to claim 99, wherein the sensor comprises an ultrasound transducer.

103. A device according to claim 77, wherein the at least one electrode and the control unit are adapted to be implanted in the body of the patient.

25 104. A device according to claim 103, wherein the at least one electrode is adapted to be implanted so as to stimulate a nerve in the pelvic region of the patient.

30 105. A device according to claim 103, wherein the at least one electrode is adapted to be implanted in contact with a pelvic muscle of the patient.

106. A device, comprising:

at least one electrode, which is adapted to be coupled to a pelvic muscle of a patient; and

5 a control unit, which is adapted to drive the at least one electrode to apply to the muscle an electrical waveform configured to reduce patient pelvic pain.

107. A device according to claim 106, wherein the control unit is adapted to receive an input from the patient and to apply the waveform responsive to the input.

10 108. A device according to claim 106, wherein the control unit is adapted to drive the at least one electrode responsive to an amount of time elapsed since the patient last voided.

109. A device according to claim 106, wherein the control
15 unit is adapted to configure the waveform so as to induce relaxation of a bladder muscle of the patient.

110. A device according to claim 106, wherein the control unit is adapted to configure the waveform to have a frequency component between about 5 and 15 Hz.

20 111. A device according to claim 106, wherein the control unit is adapted to configure the waveform to have an amplitude between about 1 and 4 V.

112. A device according to claim 106, wherein the control
25 unit is adapted to configure the waveform to include a series of pulses having widths between about 0.05 and 0.2 ms.

113. A device according to claim 106, wherein the control unit is adapted to configure the waveform to have a duration of about 10 - 30 minutes.

30 114. A device according to claim 106, wherein the control unit is adapted to configure the waveform to include a rise

time lasting between about 1 second and 3 minutes prior to attaining a designated waveform application voltage.

115. A device according to claim 106, wherein the control unit is adapted to configure the waveform to include a decay time lasting between about 1 second and 3 minutes, prior to returning to a baseline voltage.

116. A device according to claim 106, wherein the control unit is adapted to configure the waveform to have a duty cycle between about 5% and 15%.

117. A device according to claim 106, wherein the at least one electrode comprises a single monopolar electrode.

118. A device according to claim 106, wherein the at least one electrode comprises a pair of bipolar electrodes.

119. A device according to claim 106, wherein the at least one electrode comprises a flexible intra-muscular electrode.

120. A device according to claim 106, wherein the at least one electrode and the control unit are adapted to be implanted in the body of the patient.

121. A device, comprising:

a sensor, which is adapted to generate a signal responsive to a state of a patient;

at least one electrode, which is adapted to be coupled to an anatomical site of the patient; and

a control unit, which is adapted to receive the signal, to analyze the signal so as to determine a likelihood of patient pelvic pain, and, responsive to analyzing the signal, to apply to the at least one electrode an electrical waveform configured to reduce the patient pelvic pain.

122. A device according to claim 121, wherein the control unit is adapted to receive an input from the patient and to apply the waveform responsive to the input.

5 123. A device according to claim 121, wherein the control unit is adapted to configure the waveform so as to induce relaxation of a bladder muscle of the patient.

124. A device according to claim 121, wherein the control unit is adapted to configure the waveform to have a frequency component between about 5 and 15 Hz.

10 125. A device according to claim 121, wherein the control unit is adapted to configure the waveform to have an amplitude between about 1 and 4 V.

126. A device according to claim 121, wherein the control unit is adapted to configure the waveform to include a series of pulses having widths between about 0.05 and 0.2 ms.

127. A device according to claim 121, wherein the control unit is adapted to configure the waveform to have a duration of about 10 - 30 minutes.

20 128. A device according to claim 121, wherein the control unit is adapted to configure the waveform to include a rise time lasting between about 1 second and 3 minutes prior to attaining a designated waveform application voltage.

25 129. A device according to claim 121, wherein the control unit is adapted to configure the waveform to include a decay time lasting between about 1 second and 3 minutes prior to returning to a baseline voltage.

30 130. A device according to claim 121, wherein the control unit is adapted to configure the waveform to have a duty cycle between about 5% and 15%.

131. A device according to claim 121, wherein the sensor comprises a sensing electrode adapted to sense electrical activity of a bladder muscle of the patient.

132. A device according to claim 121, wherein the control unit is adapted to evaluate the likelihood of the patient pelvic pain responsive to an amount of time elapsed since the patient last voided.

133. A device according to claim 121, wherein the at least one electrode comprises a single monopolar electrode.

134. A device according to claim 121, wherein the at least one electrode comprises a pair of bipolar electrodes.

135. A device according to claim 121, wherein the at least one electrode comprises a flexible intra-muscular electrode.

136. A device according to claim 121, wherein the control unit is adapted to analyze the signal so as to distinguish between: (a) a first signal, indicative of imminent pelvic pain, and (b) a second signal, indicative of voluntary voiding by the patient.

137. A device according to claim 136, wherein the control unit is adapted to distinguish between the first and second signals responsive to a rate of change of the signal generated by the sensor.

138. A device according to claim 136, wherein the control unit is adapted to gather information regarding the signal over an extended period and to analyze the information to find a pattern characteristic of the patient, for use in determining when imminent pelvic pain is likely.

139. A device according to claim 138, wherein the control unit is adapted to associate with the pattern a time-varying threshold to which a level of the signal is compared.

140. A device according to claim 121, wherein the sensor is adapted to be coupled to the patient's bladder.

141. A device according to claim 140, wherein the sensor comprises a pressure sensor.

5 142. A device according to claim 140, wherein the sensor comprises an acceleration sensor.

143. A device according to claim 140, wherein the sensor comprises an ultrasound transducer.

10 144. A device according to claim 121, wherein the control unit is adapted to receive an indication of a fill level of the patient's bladder and to inhibit application of the electrical waveform when the fill level of the bladder is low.

15 145. A device according to claim 121, wherein the at least one electrode and the control unit are adapted to be implanted in the body of the patient.

146. A device according to claim 145, wherein the at least one electrode is adapted to be implanted so as to stimulate a nerve in the pelvic region of the patient.

20 147. A device according to claim 145, wherein the at least one electrode is adapted to be implanted in contact with a pelvic muscle of the patient.

148. A device, comprising:

25 a sensor, which is adapted to generate a signal responsive to a pressure at an abdominal site of a patient;

at least one electrode, which is adapted to be coupled to an anatomical site of the patient; and

30 a control unit, which is adapted to receive the signal, to analyze a characteristic of the signal so as to identify a voluntary contraction of abdominal musculature of the patient that indicates an onset of a pelvic

condition of the patient, and, responsive to analyzing the signal, to apply to the at least one electrode an electrical waveform configured to inhibit the condition.

149. A device according to claim 148, wherein the sensor
5 comprises a pressure sensor, and wherein the control unit is adapted to analyze a rate of change of the received signal, and to identify the voluntary contraction responsive to a low rate of change of the received signal.

150. A device, comprising:

10 at least one electrode, which is adapted to be implanted at a pelvic muscle site of a patient; and

a control unit, which is adapted to drive the at least one electrode to apply to the muscle an electrical waveform configured to inhibit urine retention of the patient.

15 151. A device according to claim 150, wherein the control unit is adapted to receive an input from the patient and to apply the waveform responsive to the input.

152. A device according to claim 150, wherein the control unit is adapted to configure the waveform to have a
20 frequency component between about 1 and 10 Hz.

153. A device according to claim 150, wherein the control unit is adapted to configure the waveform to have an amplitude between about 3 and 9 V.

25 154. A device according to claim 150, wherein the control unit is adapted to configure the waveform to include a series of pulses having widths between about 0.05 and 0.2 ms.

30 155. A device according to claim 150, wherein the control unit is adapted to configure the waveform to have a duration of about 20 - 45 seconds.

156. A device according to claim 150, wherein the control unit is adapted to configure the waveform to include a rise time lasting between about 1 second and 5 seconds prior to attaining a designated waveform application voltage.

5 157. A device according to claim 150, wherein the control unit is adapted to configure the waveform to include a decay time lasting between about 1 second and 5 seconds prior to returning to a baseline voltage.

10 158. A device according to claim 150, wherein the control unit is adapted to configure the waveform to have a duty cycle between about 50% and 100%.

159. A device according to claim 150, wherein the at least one electrode comprises a single monopolar electrode.

15 160. A device according to claim 150, wherein the at least one electrode comprises a pair of bipolar electrodes.

161. A device according to claim 150, wherein the at least one electrode comprises a flexible intra-muscular electrode.

20 162. A device according to claim 150, wherein the at least one electrode and the control unit are adapted to be implanted in the body of the patient.

163. A method for implanting a medical device in a patient, comprising:

25 creating a suprapubic incision in the patient;
 creating a vaginal mucosa incision in the patient;
 passing between the two incisions an electrode lead which is adapted for coupling to the medical device; and
 implanting the medical device in the patient.

30 164. A method according to claim 163, wherein implanting the device comprises implanting a device which is capable of treating a stress incontinence condition of the patient.

165. A method according to claim 163, wherein implanting the device comprises implanting a device which is capable of treating an urge incontinence condition of the patient.

5 166. A method according to claim 163, wherein implanting the device comprises implanting a device which is capable of treating an urge frequency condition of the patient.

167. A method according to claim 163, wherein implanting the device comprises implanting a device which is capable of treating a fecal incontinence condition of the patient.

10 168. A method according to claim 163, wherein implanting the device comprises implanting a device which is capable of treating an interstitial cystitis condition of the patient.

15 169. A method according to claim 163, wherein implanting the device comprises implanting a device which is capable of treating a chronic pelvic pain condition of the patient.

170. A method according to claim 163, wherein implanting the device comprises implanting a device which is capable of treating a urine retention condition of the patient.

20 171. A method according to claim 163, wherein passing the electrode lead comprises subcutaneously passing an inter-incision introducer between the two incisions, and passing the electrode lead through the introducer.

172. A method according to claim 171, and comprising:

25 removing the inter-incision introducer, so as to leave an end of the electrode lead accessible;

inserting a second introducer into the vaginal mucosa incision, such that a distal end of the second introducer is proximate a urethral sphincter site of the patient;

30 inserting the end of the electrode lead through the second introducer; and

securing the lead to the urethral sphincter site.

173. A device according to claim 39, wherein the sensor is adapted to generate the signal responsive to a level of filling of the rectum of the patient, and wherein the control unit is adapted to apply the waveform to the at least one electrode responsive to the signal.

174. A device according to claim 173, wherein the sensor comprises a pressure sensor.

175. A device according to claim 173, wherein the control unit is adapted to increase a parameter of the waveform responsive to a level of the signal.

176. A device according to claim 173, wherein the control unit is adapted to configure the waveform to be such as to induce afferent signaling in the patient.

177. A device according to claim 176, wherein the control unit is adapted to configure the waveform to be such as to induce in the patient afferent signaling of a form which induces a conscious sensation of rectal filling.

178. A device according to claim 177, wherein the control unit is adapted to configure the waveform to be such as to induce in the patient afferent signaling of a form which induces a conscious sensation of rectal filling and an urge to voluntarily contract an anal sphincter muscle of the patient.

179. A device according to claim 176, wherein the control unit is adapted to configure the waveform to be such as to induce afferent signaling in the patient of a form that induces contraction of a smooth muscle in a pelvic region of the patient and inhibits fecal incontinence.